

Introducing Pro-West & Associates, Inc.'s Semi-Rectified Digital Color Aerial Photography

For USDA FSA Crop Compliance



Benefits of PWA's Semi-Rectified Digital Aerial Photography For Crop Compliance Purposes

- Total cost similar to original 35mm program.
 - \$2.50 - \$3.00 per square mile
- Digital Image Enhancement.
- Resolution ~ 0.8 meter ground unit.
- Compatible with ESRI's ArcGIS & ArcView 3.X product lines.
- Immediate digital viewing in ArcGIS or ArcView via photo index shapefile.
- Immediate general rectification.
- Easy post-rectification utilizing ArcGIS GeoReferencing tools.

PWA's Semi-Rectified Aerial Photography Utilizes a Number of Technologies

- Aircraft & Avionics
- GPS (Global Positioning System)
- Digital Color Cameras
- GIS (Geographic Information Systems)

Aircraft Specifications

- Cessna Model 182
 - Ideal, economical airplane for this type of aerial photography.
- Long range fuel tanks
- Auto Pilot / GPS

Process & Equipment



Cessna 182



Camera Mount



Auto Pilot



Camera Bay

Process & Equipment



Real time GPS/GIS
navigation with ArGIS
for acquiring photography.

Digital Image Enhancement



Original Digital Image

Contrast/Brightness Enhanced Digital Image



National Agricultural Imagery Program & PWA's Digital Aerial Photography Resolution Comparison



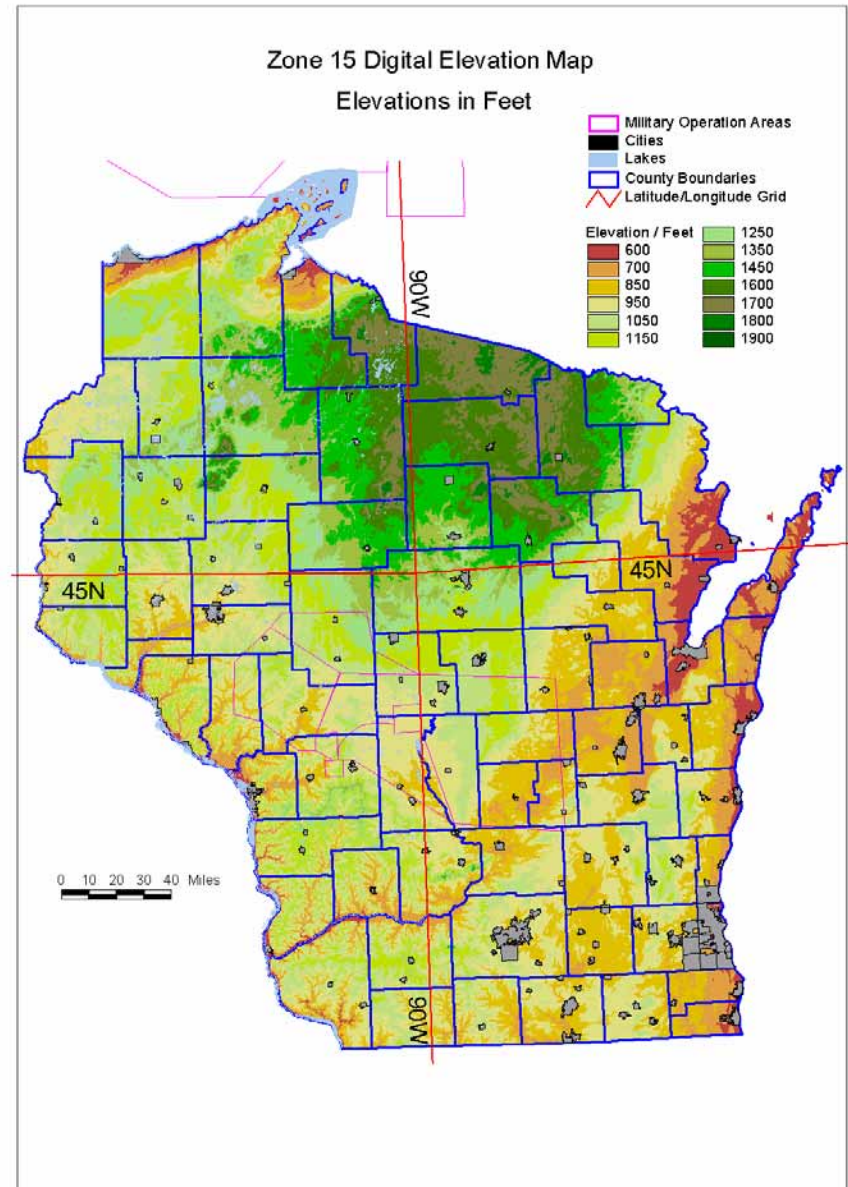
NAIP 2003
(1 Meter Resolution)



PWA's 2004
(~ 0.8 Meter Resolution)

Digital Elevation Model

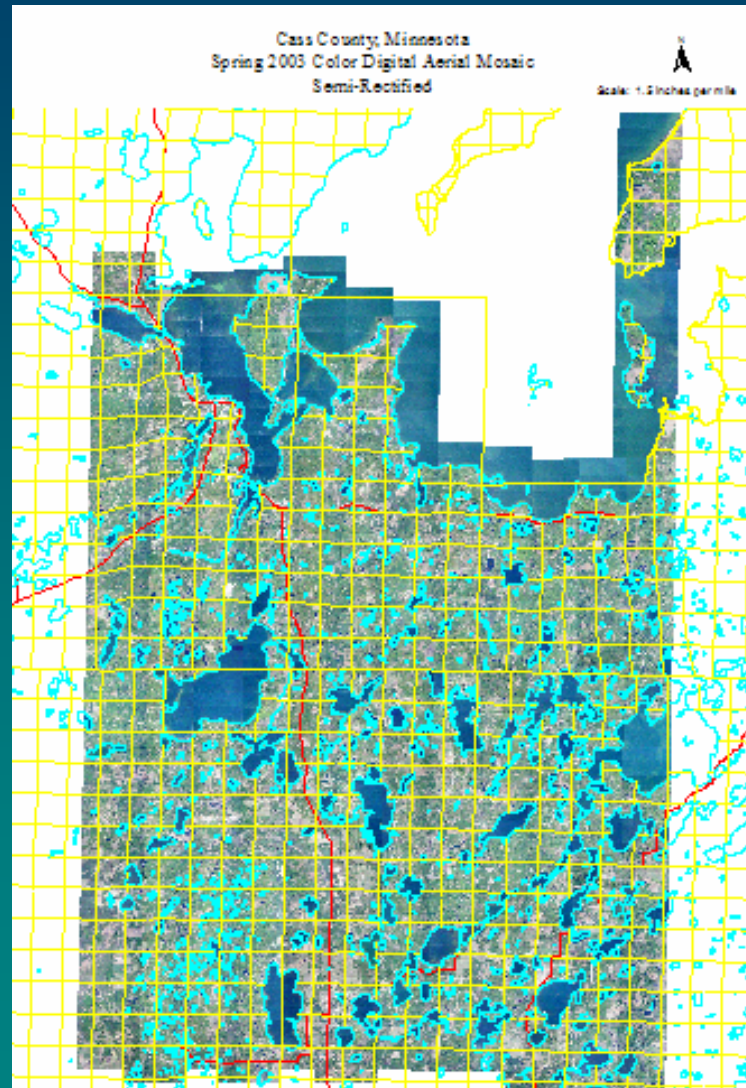
While in flight, the altitude is collected with the GPS photo point. The DEM elevation is used in conjunction with the GPS point to scale and semi-rectify the image in real time.



Real Time Semi-Rectification Imagery

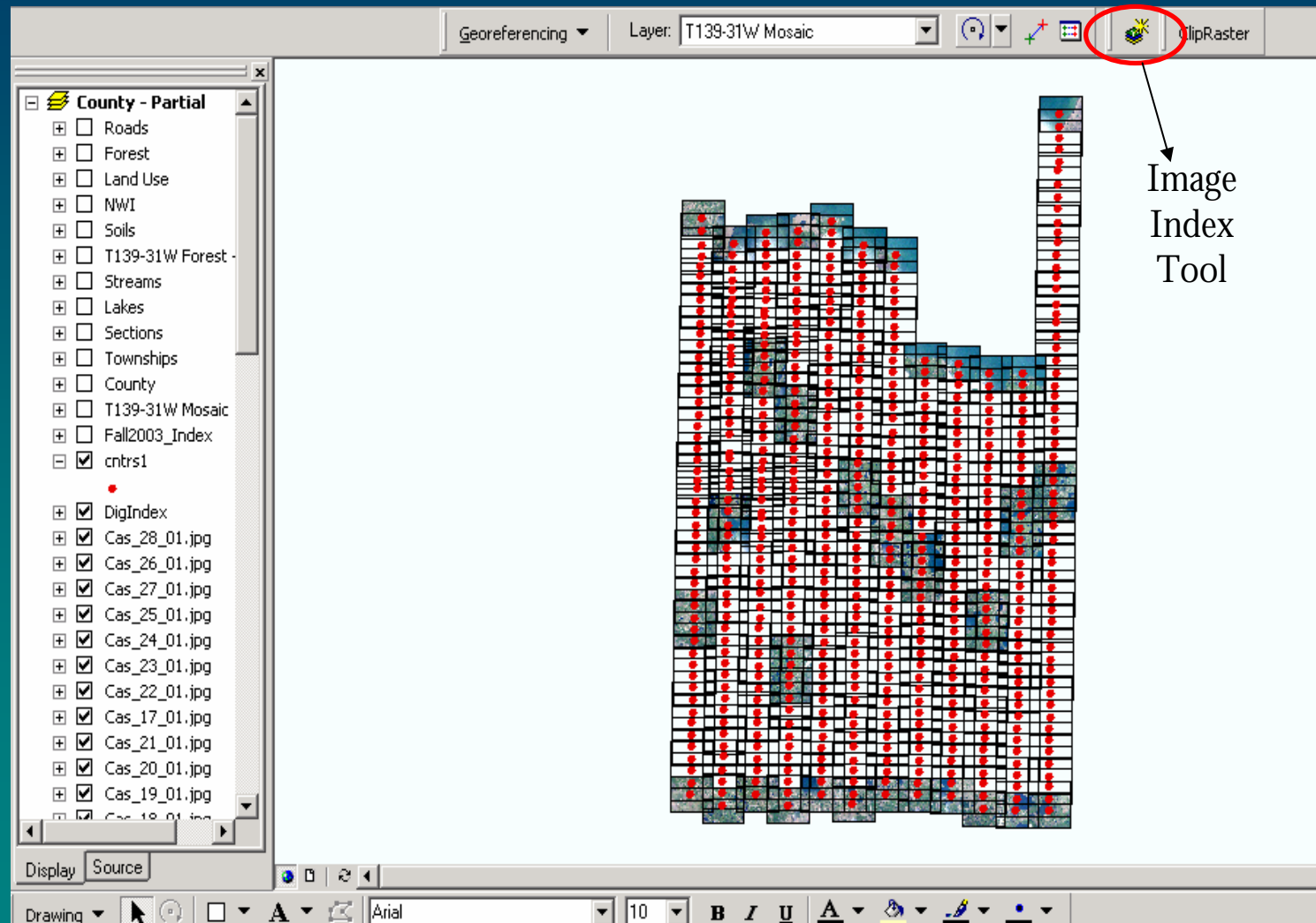
A draft image mosaic with base data overlaid can be printed almost immediately.

Example: This map contains approximately 700 photos that were both acquired and printed within a 24 hour period.



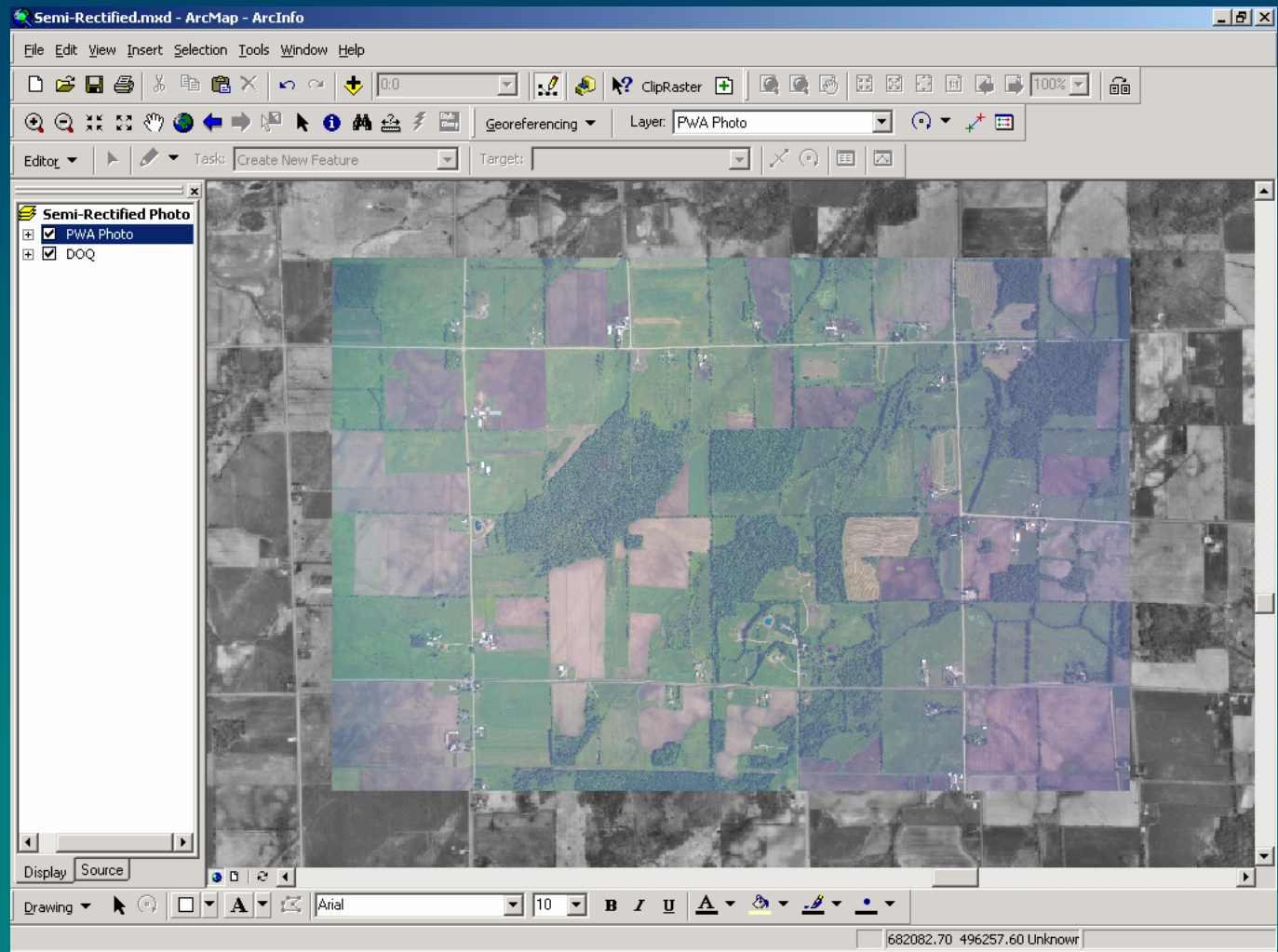
Semi-Rectified Production ~ Using ArcGIS

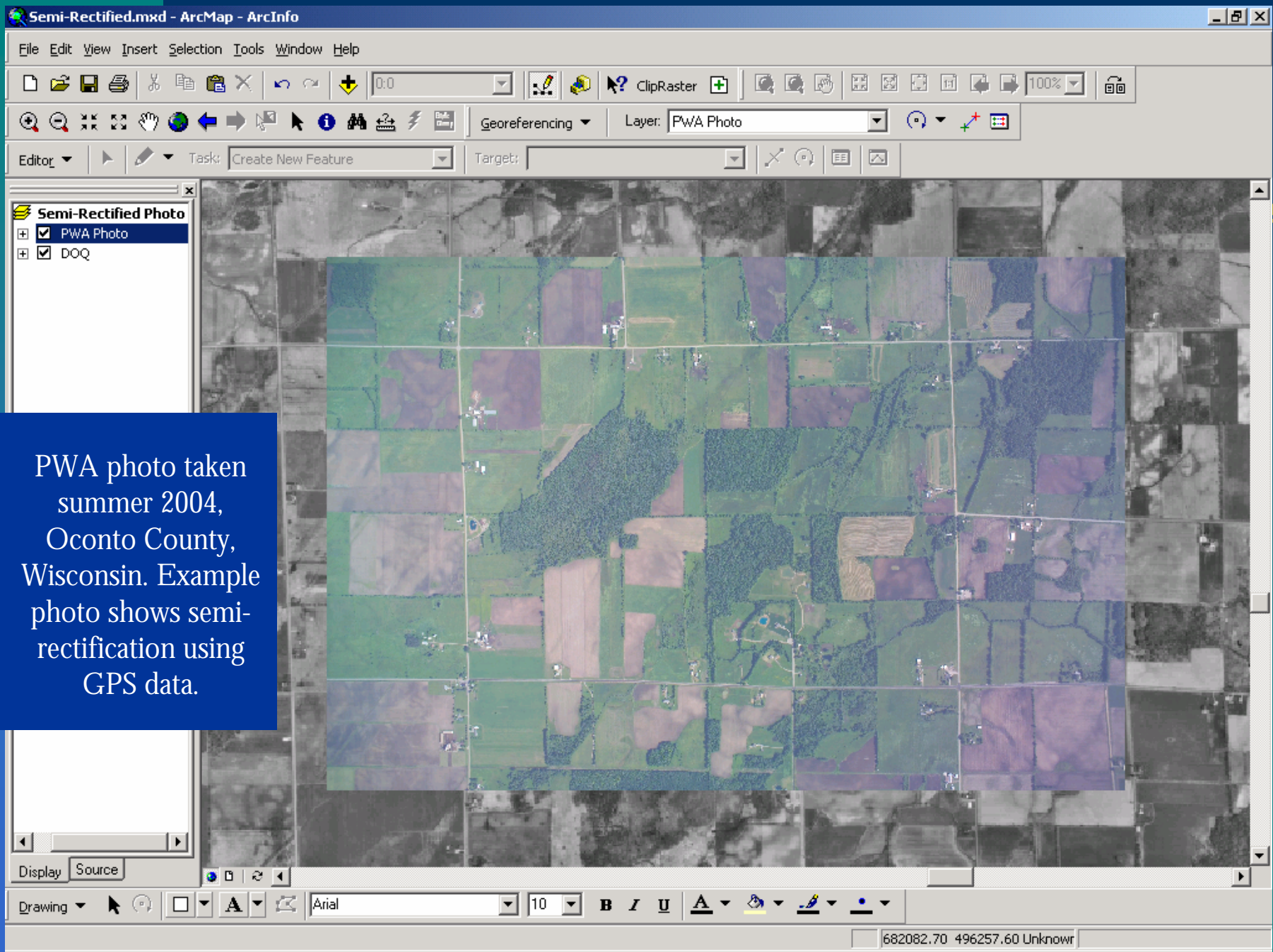
PWA digital aerial photography is loaded into ArcGIS via an Image Index. The Image Index allows the user to point, click and retrieve the photo that is in the closest proximity to the area selected.



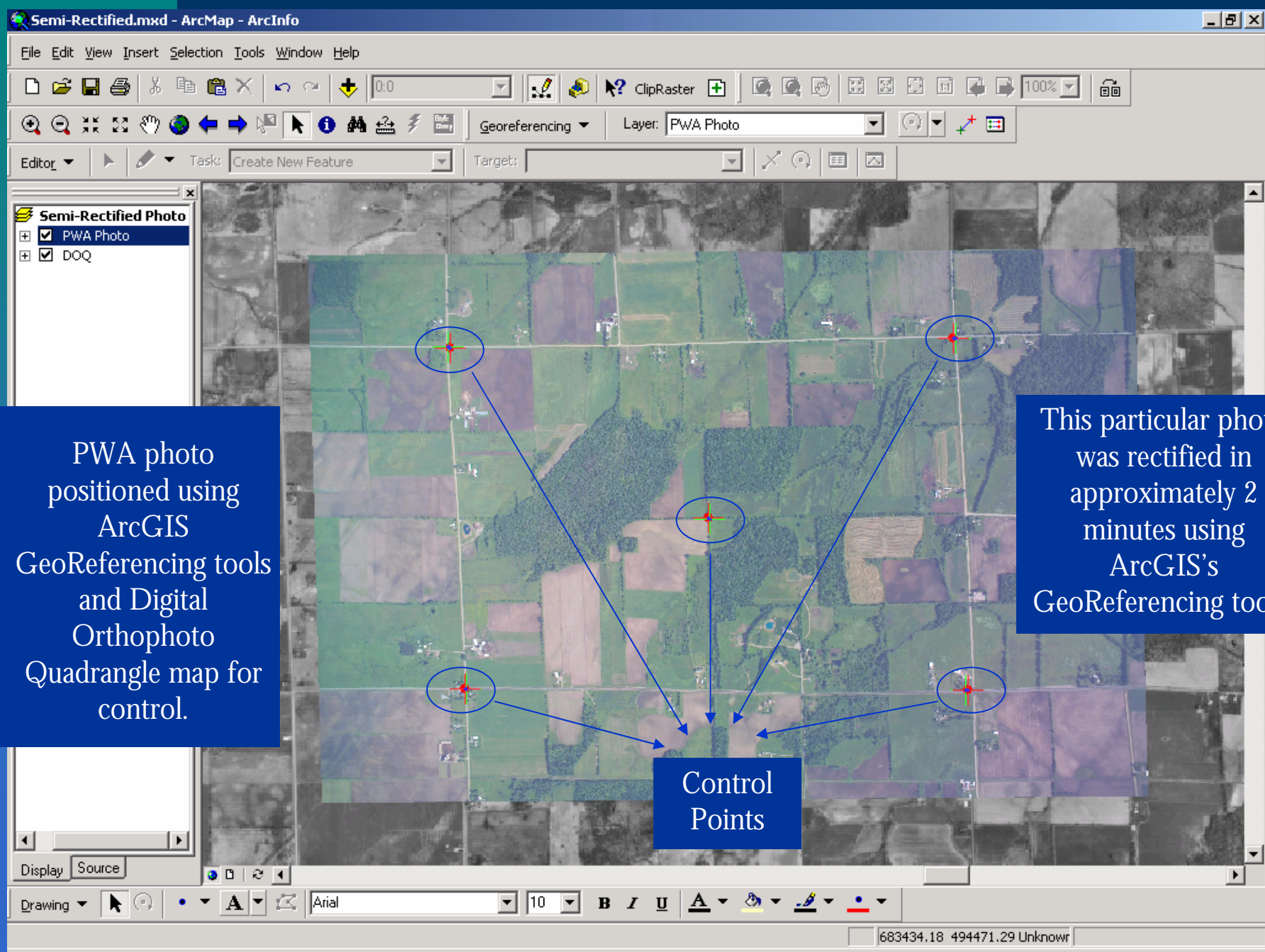
Semi-Rectified Image (Positioning & Placement Based on GPS)

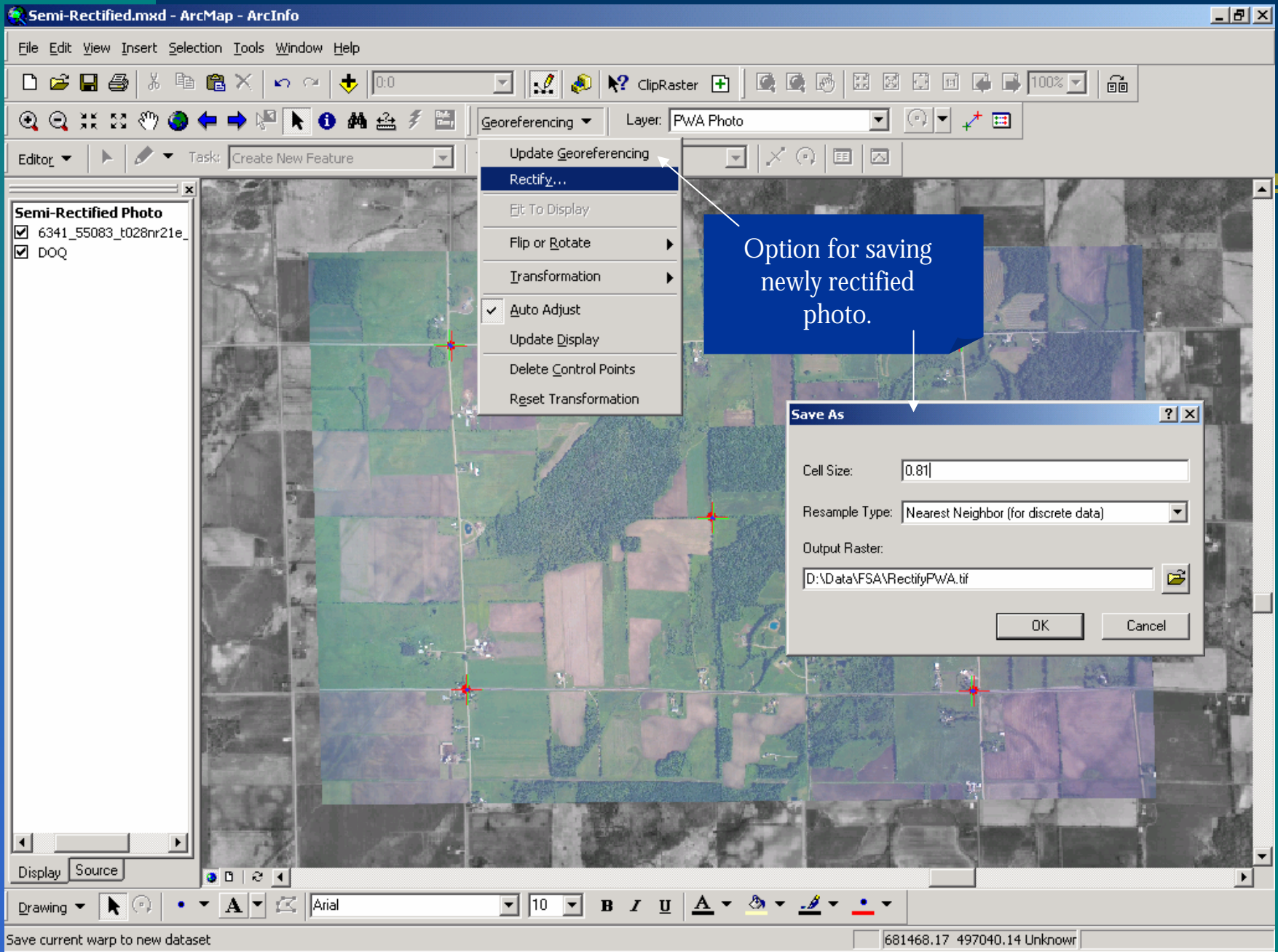
After the photos are brought in with the Image Index Tool, the georeferencing tools imbedded in the ArcGIS software allow for further rectification.

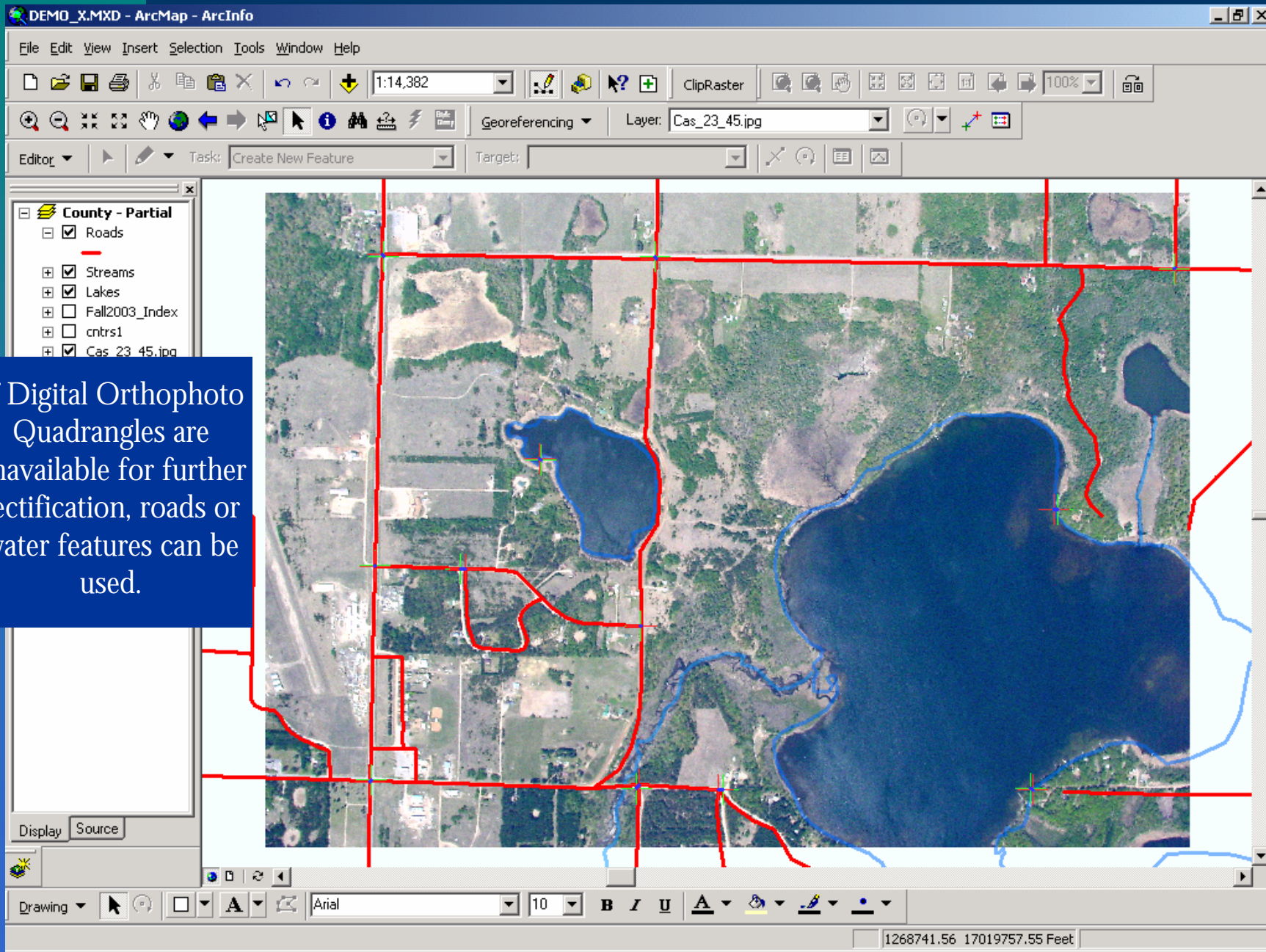




PWA photo taken
summer 2004,
Oconto County,
Wisconsin. Example
photo shows semi-
rectification using
GPS data.







Customization of ArcGIS Software

- Additional buttons are available for:
 - Field Tracing
 - Area/Acreage Calculation
 - Image Index Tool

Cost

- Anticipated total cost of this product would be \$2.50 ~ \$3.00 per square mile.
- These costs are predicated on flying large expanses of land.



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